

Application No. 10/606,567  
Office Action Dated June 24, 2005  
Response to Office Action Dated July 28, 2005

**In the Claims:**

1. (Original) A method for measuring flow by means of an ultra sonic flow meter, the method comprising the steps of transmitting an ultra sonic signal in an upstream and a downstream direction, initiating a time measurement at a starting time upon receipt of the ultra sonic signal, and stopping the time measurement at a stopping time  
making a first series of transmissions where the starting time in each transmission is incremented or decremented until a time difference ( $\Delta t$ ) between the upstream and downstream signal is inside a reference band ( $\Delta t_{span}$ ), and calculating the flow based on the time measurements.
2. (Original) A method according to claim 1, including the further step of generating a second series of transmissions following the first transmissions, where the starting time in each transmission is incremented or decremented until the time period (DS\_RUNUP) between the starting time (DS\_START) and the stopping time (DS\_STOP) is approximately equal to a multiple of half the time period of the ultra sonic signal, but preferably equal to the time period.
3. (Currently Amended) A method according to claim 2, including the further step of generating a third series of transmissions following the first and second series ~~of transmissions, incrementing or decrementing, decrementing~~ the starting time in the third series of transmissions until a difference between a calculated average transmission time and a transmission time reference value determined on the basis of the media temperature is inside a reference band.
4. (Original) A method according to claim 3, wherein the incrementation or decrementation during the third series of transmissions is done in steps of a timely resolution ( $t_{sig}$ ) that is approximately equal to the period of the received signal.

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5. (Original) A method according to claim 1, wherein the incrementation or decrementation is done in steps of a timely resolution ( $t_{res}$ ) defined by the resolution of the microcontroller.
6. (Original) A method according to claim 1, wherein following the starting time, the time measurement is stopped at a first positive zero crossing of the received ultra sonic signal or at a first negative zero crossing.
7. (Original) A method according to claim 1, wherein following the starting time, the time measurement is stopped at a first positive zero crossing following a negative zero crossing of the received ultra sonic signal, or vice versa.
8. (Original) A method according to claim 1, wherein the starting time in the first transmission in the first series of transmissions is a fixed value (DS\_START\_INI).
9. (Original) A method according to claim 1, wherein the reference band ( $\Delta t_{span}$ ) is delimited by a maximum difference time ( $\Delta t_{max}$ ) and a minimum difference time ( $\Delta t_{min}$ ), the width of the band being smaller than the time period ( $t_{sig}$ ) of the ultra sonic receive signal.
10. (Original) A method according to claim 9, wherein a safety margin is added to the reference band, the safety margin corresponding to at least the timely resolution ( $t_{res}$ ) of the incrementing or decrementing steps, and preferably the sum of a resolution and the duration of a timing noise ( $t_n$ ).